

WHAT IS CLAIMED IS:

1. A carrier head, comprising:  
a retaining ring; and  
a flexible membrane to press a substrate against a polishing surface, the flexible membrane having a roughened lower surface.
2. The carrier head of claim 1, wherein the flexible membrane is sufficiently rough that the substrate does not move or rotate relative to the membrane.
3. The carrier head of claim 1, wherein the flexible membrane is formed of a material having a high friction coefficient.
4. The carrier head of claim 1, wherein the flexible membrane includes features (such as grooves or vias) to increase its friction coefficient.
5. The carrier head of claim 1, wherein the friction coefficient of the flexible membrane is sufficiently high so that the substrate does not move or rotate relative to the membrane.
6. A carrier head, comprising:  
a retaining ring; and  
a flexible membrane to press a substrate against a polishing surface, the flexible membrane formed of a material having a high friction coefficient.
7. The carrier head of claim 6, wherein the flexible membrane has a rough lower surface.
8. The carrier head of claim 6, wherein the flexible membrane includes features to increase its friction coefficient.
9. A carrier head, comprising:  
a retaining ring; and

a flexible membrane to press a substrate against a polishing surface, the flexible membrane including features to increase its friction coefficient.

10. The carrier head of claim 9, wherein the flexible membrane is formed of a material having a high friction coefficient.

11. The carrier head of claim 9, wherein the bottom of the flexible membrane is roughened to increase its friction coefficient.

12. The carrier head of claim 9, wherein the friction coefficient of the flexible membrane is sufficiently high so that the substrate does not move or rotate relative to the membrane.

13. The carrier head of claim 9, wherein the features are grooves.

14. The carrier head of claim 9, wherein the features are vias.

15. A method of assembling a carrier head comprising:  
abrading a flexible membrane to provide the membrane with a roughened surface;  
installing the flexible membrane in the carrier head in a position to apply pressure to a substrate.

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